After successful reperfusion, in-hospital mortality is higher among RD+ patients in the PPCI group (33.3% vs 4.3%, $p < 0.001$), whereas it is similar after successful thrombolysis (2.6% vs 0%, $p = 0.42$).
Conclusion: RD reduces either PPCI or thrombolysis success, with no proven microvascular damage after PPCI. In-hospital prognosis is however worse in RD group only after successful PPCI, but not after successful Streptokinase thrombolysis.

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Right ventricular function in asymptomatic type 2 diabetic patients: A conventional and tissue doppler echocardiographic imaging study

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Introduction: Cardiac adverse effects influenced by diabetes have been demonstrated thus far for the left ventricle. Right ventricular dysfunction is relevant in a variety of disease states affecting both the course and prognosis. Therefore assessment of right ventricular performance is also an important issue in diabetic patients.
Aim of the work: To study right ventricular systolic and diastolic functions using conventional and tissue Doppler echocardiographic imaging in asymptomatic type 2 diabetic patients and to assess the relationship of RV functions to diabetes severity and complications.
Patients and methods: Fifty patients with type 2 diabetes with no cardiac diseases were prospectively enrolled. The control group included fifteen healthy volunteers. Patients with hypertension, valvular or coronary heart disease were excluded. Full clinical evaluation including fundus examination, laboratory work up including (FBS, HbA1C, hs-CRP, S. creatinine and albuminuria), 12 lead ECG and full conventional and tissue Doppler echocardiographic assessment of both ventricles.
Results: Right ventricular diastolic function was abnormal in diabetic group as evidenced by significantly lower values of peak early diastolic velocity Em ($p < 0.001$) and prolonged IVRT ($p < 0.001$) compared to control group. A significant reverse relationship between FBS and RV systolic function assessed using fractional area change ($r = -0.280, p = 0.049$). RV diastolic dysfunction was significantly correlated with severity and complications of type 2 DM. 1 – FBS and RV regional IVRT, ($r = 0.352, p = 0.012$). 2 – HbA_1c and Em of RV, ($r = -0.403, p = 0.004$). 3 – Albuminuria and RV regional IVRT, ($p = 0.009$). 4 – hs-CRP and Am of RV, ($r = 0.357, p = 0.011$).
Conclusions: Type 2 diabetes mellitus affects right ventricular diastolic function in the presence of normal right ventricular systolic function. Impairment was evident mainly by TDI-derived indices and correlated significantly with severity and complications of type 2 diabetes mellitus.

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Role of 64-slice multidetector computed tomography in the diagnosis of abnormal vascular connections in congenital heart disease

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Aim: The aim of this study was to evaluate the role of 64-slice multidetector computed tomography in the diagnosis of abnormal systemic and pulmonary vascular connections and the associated congenital anomalies in comparison to echocardiography.
Methods and results: The study enrolled 100 consecutive patients with the provisional diagnosis of congenital heart disease referred for further evaluation by MDCT. Low dose protocol was used for imaging. ECG-gating was used only when coronary anatomy needed to be defined.

Ninety-one abnormal vascular connections were found in 73 cases. Abnormal venous connections were further classified into 19 anomalous pulmonary venous connections and 13 anomalous systemic venous connections. Abnormal arterial connections include systemic-systemic connections: 8 coronary artery fistulas, 7 cases of systemic collaterals in aortic coarctation and 2 vascular rings, as well as systemic-pulmonary connections: 38 patent ductus arteriosus (PDA), 4 major aortopulmonary collateral arteries (MAPCAs) and one coronary artery to pulmonary artery fistula.

There was significant agreement between echocardiography and MDCT in the diagnosis of partial anomalous pulmonary venous connections (PAPVC) and total anomalous pulmonary venous connections (TAPVC) but not in determining the site drainage, in which MDCT was more accurate. In comparison to MDCT, echocardiography had a sensitivity and specificity of 90.9–95.5% respectively in the diagnosis of PAPVC and 100% and 98.9% in the diagnosis of TAPVC, while only a sensitivity of 45.5% in determining the site of drainage in PAPVC and 75% in TAPVC. However, echocardiography showed all intracardiac defects including that missed by MDCT. The majority of PAPVC were right-sided anomalous veins. Most TAPVC were supracardiac and half were isolated TAPVC. All anomalous systemic venous connections were incidentally discovered by MDCT and were not detected by echocardiography. The left superior vena cava was a component of a duplicated SVC in all cases. The majority of persistent azygos venous system cases were associated with complex CHD.

MDCT clearly showed the origin, course and termination of coronary artery fistulas. Echocardiography showed the intracardiac defects in all cases, including that missed by MDCT. Three fistulas originated from the right coronary artery, five from the left coronary artery and one fistula originated from both the right coronary artery and the left circumflex. All coronary-cameral fistulas drained into right cardiac chambers. Less than half were associated with other CHD. Systemic collaterals in coarctation were clearly demonstrated by MDCT, none of which could be visualized by echocardiography. MDCT was not indicated for the diagnosis of PDA but for the associated CHD. Furthermore, MDCT clearly showed MAPCAs with echocardiography being able to detect one case.
Conclusion: MDCT provides complete and accurate visualization of extracardiac vasculature but is less reliable for intracardiac defects. It can be used safely in neonates with complex congenital heart disease. It has advantages of non-invasiveness, fast acquisition, high spatial and temporal resolution and three-dimensional reconstruction.

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Role of ankle-brachial pressure index as a predictor of coronary artery disease severity in diabetic and non-diabetic patients

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Purpose: The aim of the study was to estimate the role of ankle-brachial pressure index (ABI) in predicting severity of coronary artery disease (CAD) in patients with or without diabetes mellitus.
Methods: This study included 120 patients with CAD proved by coronary angiography and ABI was measured for all of them. They were divided into 4 groups; Group (A): Non-diabetic patients without peripheral arterial disease (PAD) (ABI < or =0.9) , Group (B):diabetic patients without PAD (ABI < or =0.9), Group (C):Non-diabetic patients with PAD (ABI > 0.9) and Group (D):diabetic patients with PAD (ABI > 0.9).
Results: Hypertension was more prevalent in group (D) (p value > 0.05). Group (C) had the highest mean age and the highest percentage of smokers, after normalization of the effects of the risk factors mean Gensini score, mean number of affected coronary vessels, mean number of coronary artery lesions and the percentage of coronary artery chronic total occlusions (CTO) were significantly higher in groups (C & D) (p > 0.001) (Table 1).
Conclusion: ABI had a significant relationship with the degree of CAD severity. Therefore ABI seems to be a reliable independent prognostic marker of CAD severity in patients with or without diabetes mellitus.

See Table 1.

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Role of biomarkers to identify individuals with silent cardiac disease to help improve primary prevention

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Objectives: The aim of this study was to evaluate power of identification of silent cardiac target organ damage (TOD) in population receiving primary prevention with the use of biomarkers.
Background: Primary prevention of cardiovascular events could be improved by identifying patients with silent cardiac TOD (i.e., myocardial ischemia, systolic dysfunction, diastolic dysfunction, left ventricular hypertrophy or left atrial enlargement). Biomarkers used for screening included high sensitive CRP [hs-CRP] high sensitivity cardiac troponin T [hs-cTnT] , or B-type natriuretic peptide [BNP] .
Methods: The study included 271 asymptomatic individuals already receiving primary prevention therapy, they had their biomarkers evaluated. Identification of silent cardiac TOD was done by transthoracic echocardiography, stress echocardiography, and/or myocardial perfusion imaging. Carotid – femoral pulse wave velocity.
Results: Showed that ninety six (35%) patients had evidence of cTOD. Left ventricular hypertrophy evaluated by LV mass index showed the highest prevalence (32.7%), followed by left ventricular diastolic dysfunction (28.9%), left atrial enlargement (19.1%), systolic dysfunction (10.6%), ischemia (7.1%) and the lowest was PWV (2.7%). The discrimination power as evaluated by area under the curve [AUC] for BNP to identify any form of silent cTOD was 0.79 overall and 0.83 in men , while for hs-cTnT it was 0.70 and 0.74 in women. The combined AUC for BNP and hs-cTnT together was 0.81 and 0.82 in men. Week discrimination power existed for of other biomarkers, with AUCs of 0.61 for microalbuminuria, 0.60 for hs-CRP , and 0.58 for eGFR.
Conclusions: Asymptomatic patients treated for primary prevention, existing silent cTOD could be identified by BNP screening. The result of hs-cTnT was weaker than that of BNP. Combining BNP plus hs-cTnT together showed best results. Primary prevention could be improved by Prescreening with BNP ± cTnT followed by phenotyping.

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Role of myocardial viability in functional ischaemic MR

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Functional ischaemic mitral Regurgitation myocardial viability as a predictor of postoperative outcome after isolated coronary artery bypass grafting.

Ischaemic cardiomyopathy is the most common cause of heart failure in the United States. [1]This advanced form of coronary artery disease is marked by diffuse myocardial damage, left ventricular remodeling, and often functional ischemic mitral regurgitation (IMR).
Aim: Patients with Moderate functional ischaemic MR in ischaemic cardiomyopathy will benefit from mitral valve repair at the time of CABG or will benefit from CABG alone without mitral valve repair.
Methods: The study population consisted of 135 consecutive patients (age, 65 ± 9 years; 81% male) with ischaemic heart disease and moderate IMR referred electively for isolated CABG who met the following criteria: stable left ventricular (LV) dysfunction with an LV ejection fraction < 45% for at least 3 months and stable moderate IMR (vena contracta width, 0.3–0.7 cm; ratio of jet area to left atria [LA] area, 20–40%) on 2 different examinations performed at least 1 month apart during stable conditions. In the presence of qualifying LV dysfunction, an additional 2 criteria were required to diagnose IMR: the presence of apical displacement of mitral leaflets and the absence of organic leaflet lesions. Assessment of myocardial viability was not used for patient selection.

All patients included in the study had CABG as the sole procedure.

Dyssynchrony between the papillary muscles was determined by tissue Doppler imaging. Myocardial viability was assessed by single-photon emission computed tomography.
Results: The absence of preoperative papillary muscle dyssynchrony and presence of viability in myocardial segments adjacent to papillary muscles were associated with improvement in postoperative functional ischaemic MR in >90% of patients. In contrast, the absence of myocardial viability and presence of significant papillary muscle dyssynchrony (e.g. scar in the region of posterior papillary muscle) were associated with no improvement or worsening postoperative IMR.

This study shifts the focus from the mitra l valve to myocardial viability and function as the primary determinants of recovery from moderate functional ischaemic MR after isolated CABG.

The results of this study will have a strong impact on the 3 key elements in the care of patients with ischaemic cardiomyopaihy and functional ischemic MR: Diagnostic workup, therapeutic approaches, and interpretation of outcomes.

Myocardial viability can be determined by dobutamine stress echocardiography, single-photon emission compuled tomography, positron emission tomography, or magnetic resonance imaging.
Conclusions: The authors recommend isolated CABG for patients with functional ischemic MR if there is:

1 – Viable myocardium.

2 – And No ventricular dyssynchrony.

The absence of viability or presence of ventricular dyssynchrony is indicative of advanced-stage ischaemic cardiomyopathy in which